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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/517,244	12/07/2004	Hiroyuki Morioka	112857-402	3110
29175	7590	06/23/2008		
BELI, BOYD & LLOYD, LLP			EXAMINER	
P. O. BOX 1135			WARTALOWICZ, PAUL A	
CHICAGO, IL 60690				
		ART UNIT	PAPER NUMBER	
		1793		
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		06/23/2008	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/517,244

**Applicant(s)**

MORIOKA ET AL.

**Examiner**

PAUL A. WARTALOWICZ

**Art Unit**

1793

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 April 2008.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 27, 28 and 33-38 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 27, 28 and 33-38 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO/5508)  
Paper No(s)/Mail Date 4/25/08  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 27, 28, 33-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pecharsky et al. (6773692) in view of either Redmond (U.S. 7169489) or Ovshinsky et al. (U.S. 2001/0025670).

Pecharsky et al. teach the instantly claimed hydrogen occluding material and the method of using the hydrogen occluding material having a solid hydride of formula  $AlH_3$  (Column 4, lines 11-28, line 24 in particular) and that the hydride releases hydrogen at a temperature in the range from  $-200^{\circ}C$  to about  $100^{\circ}C$  (Column 4, line 65 through Column 5, line 5) in an inert atmosphere (col. 5). Also taught is the use of a catalyst in combination with the hydride, the catalyst selected from metals belonging to periods III to V of the periodic table (Column 4, lines 42-52), that the catalyst and hydride are

Art Unit: 1793

powders (Column 5, line 6), and that the catalyst is present in an amount of about 0.1-25 mol%, about 1-15 mol%, or about 1.5-10 mol% (Column 4, lines 53-64). Specifically taught is the use of lithium in addition to Ti (Examples 1-2 and 4) and Fe (Example 3) as the catalyst dopant.

As to the instantly claimed hydrogen release in one step, the materials of Pecharsky et al. appear to be the same as those instantly claimed and therefore would inherently exhibit the same hydrogen release in one step.

As to the limitation of the absence of mechanical treatment, it appears that Pecharsky teaches a substantially similar mechanical treatment as that of the currently claimed invention. While Pecharsky teaches the use of a ball mill, the current invention teaches the use of an agate mortar, the use of either of these apparatus constitute mechanical treatment.

Perchasky fails to teach dopant including at least one species selected from sodium used in conjunction with titanium.

Ovshinsky et al. teach a hydrogen storage material [0002] wherein the material is doped with sodium for the purpose of enhancing the hydrogen storage capabilities of the storage material [0089].

Redmond teaches a hydrogen storage material (col. 11-12) wherein sodium is used as a dopant (col. 23).

It would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide the hydrogen storage material is doped with sodium in Perchasky et al. in order to enhance the hydrogen storage capabilities of the

Art Unit: 1793

storage material and increase the rate of permeation of hydrogen into the hydrogen storage material as taught by Ovshinsky et al. and Redmond, respectively.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PAUL A. WARTALOWICZ whose telephone number is (571)272-5957. The examiner can normally be reached on 8:30-6 M-Th and 8:30-5 on Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Paul Wartalowicz  
June 17, 2008

/Steven Bos/  
Primary Examiner  
A.U. 1793